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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,997	06/28/2001	Sin Ho Kang	8733.484.00	6417

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EXAMINER	
DHARIA, PRABODH M	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,997	KANG ET AL.	
	Examiner	Art Unit	
	Prabodh M. Dharia	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,25-27,29,30 and 32-36* is/are pending in the application.

4a) Of the above claim(s) *22-24,28 and 31* is/are withdrawn from consideration.

5)☒ Claim(s) *36* is/are allowed.

6)☒ Claim(s) *1-21,25-27,29,30 and 32-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because total word count exceed 150.

Correction is required. See MPEP § 608.01(b).

4. **Status:** Receipt is acknowledged of papers submitted on 04-05-2005 under amendments and new claims have been placed of record in the file. Claims 1-21, 25-27, 29, 30 and 32-36 are pending in this action. Claims 22-24, 28 and 31 are cancelled.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 9-12** and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by *Evanicky (U.S.* Patent 6,611,249).

Regarding **independent claims 9, 18,** Evanicky teaches an apparatus for providing a gamma voltage correcting apparatus for a liquid crystal display wherein a liquid crystal pixel LCD (column 2, lines 62-65) is arranged at each intersection between data lines and gate lines (column 7, lines 18-23) and video data is corrected by a preset gamma voltage to display an image by adjusting the gamma values of the RGB colors (column 4, lines 12-18).

Furthermore, Evanicky teaches how the apparatus comprises a memory means for storing gamma data by teaching a color lookup table for providing gamma correction to the image data (column 3, lines 52-54) in which color temperature correction data for correcting a color temperature characteristic of an input image is set in correspondence with a gray level value of the input image (figure 15 at 940, 950, 960, column 17, lines 64 through column 18, lines 1-14).

Furthermore, Evanicky teaches the connectivity between memory means (13-15) and serial port 18 for accessing the lookup table within the graphics controller color LUTs 730 of serial port 18 in accordance with the gray level value of the input image to read out the color temperature correction data corresponding to the gray level value of the input image (column 13, lines 60 through column 14, lines 1-9, figures 1, 10 at 13-15, 18, 730).

Furthermore, Evanicky teaches data driving means for driving the data lines using the color temperature correction data from the memory control means column 17, lines 64 through column 18, lines 1-14; see also figure 7 at 530a).

Regarding **claim 10,** in further description of claim 9, Evanicky teaches a row driver 530b for sequentially applying a scanning pulse to the gate lines to drive the gate lines (figure 7 at 530b). Furthermore, Evanicky teaches a timing controller (figure 7 at 520) for supplying the input image to the memory control means and for applying a desired timing control signal to the row driver (figure 7 at 520, 530b).

Regarding **claims 11,** 12, **19** and 20, in further description of claims 9 and 18, Evanicky teaches how the color temperature correction data is measured after controlling the input image such that a color temperature of a displayed image on the liquid crystal display maintains approximately 6500 K (figure 6, column 10, lines 56-59; column 11, lines 5-14, figure 5).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim**1, 4-6, 13-17, 21,25-27,29,30,32-35** rejected under 35 U.S.C. 103(a) as being unpatentable over Tone (U.S. Patent 6,046,712) in view of Margulis et al. (6,157,396).

Regarding **independent claims 1, 13, 21, 29, and 34** Tone teaches an apparatus for providing a gamma voltage correcting apparatus for a liquid crystal display (column 17, lines 60-62; column 59-67, figure 17 at 615a) wherein video data is corrected by a preset gamma voltage to display an image entering desired values for the x- and y-coordinate data Xn and Yn to facilitate the operation of gamma correction (column 14, lines 1-15, figure 16-19 at 615).

Furthermore, Tone teaches how the apparatus comprises a memory means by external data RAM 403 for storing gamma correction for controlling the gamma voltage for each of at least two modes by teaching how the data entry unit 615 enters data to the external data RAM 403 via the external CPU, which activates the mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615).

Also, Tone teaches a control means by teaching CPU 513 which activates the mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615).

Furthermore, Tone teaches a multi-channel gamma voltage generator for responding to the gamma data for a mode selected by the control means to generate n gamma voltages (wherein n is an integer) having a different voltage level indicated by the gamma data for the selected mode by teaching a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

However, Tone fails to recite or disclose video data modulated by a gamma voltage correction apparatus are applied r to the data lines of a display device, via a column driver; on the other hand Margulis et al. discloses video data modulated by a gamma voltage correction apparatus are applied r to the data lines of a display device, via a column driver (Col. 13, Lines 35-47, Line 62 to Col. 14, Line

5, Col. 16, Line 33 to Col. 17, Line 65, Col. 18, Lines 8-26Col. 19, Line 36 to Col. 20 Line 23, Col. 24, lines 17-23).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Tone and Margulis et al. because while Tone teaches how a CPU 513 activates a mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615), Margulis et al. teaches how the LCD (Col. 6, Line 37) comprises a column driver for correcting the video data by performing gamma correction and supplying the corrected video data to the data lines (Col. 13, Lines 35-47, Line 62 to Col. 14, Line 5, Col. 16, Line 33 to Col. 17, Line 65, Col. 18, Lines 8-26Col. 19, Line 36 to Col. 20 Line 23, Col. 24, lines 17-23). The motivation for combining these inventions would have been to provide optimized a high quality display device (Col. 1, Lines 8-11).

Regarding **claims** 4 and **5,** in further discussion of claim 1, Tone teaches how gamma data for the selected mode by teaching a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

Regarding **claim 6,** in further discussion of claim 1, Tone teaches how the memory means and the control means are integrated into a single integrated circuit (figure 13 at 400, 312, 403).

Regarding claims 2, 14-17, 25-27, 30, 32, 33 and 35 in further discussion of claims 13, 21, 29, and 34 Tone teaches a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n

which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

Margulis et al. discloses video data modulated by a gamma voltage correction apparatus are applied r to the data lines of a display device, via a column driver and user controlled (Col. 13, Lines 35-47, Line 62 to Col. 14, Line 5, Col. 16, Line 33 to Col. 17, Line 65, Col. 18, Lines 8-26Col. 19, Line 36 to Col. 20 Line 23, Col. 24, lines 17-23, Col. 24, lines 31-39, Col. 5, Lines 54-58).

9. **Claims** 3, 7 and **8** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Tone (U.S.* Patent 6,404,512) in view of Margulis et al. (6,157,396) as applied to claims **1, 4-6, 13-17, 21,25-27,29,30,32-35** above and further in view of *Hiroki (U.S.* 6,771,238).

Regarding **claims 3,** in further discussion of claim 1, Tone modified by Margulis et al. teaches a gamma correcting apparatus for a liquid crystal display (column 14, lines 1-15, figure 16-19 at 615).

However, Tone modified by Margulis et al. does not teach how the LCD comprises a column driver for correcting the video data using the gamma voltage from the multi-channel gamma voltage generator and supplying the corrected video data to the data lines. On the other hand, Hiroki discloses an active matrix display device, comprising a plurality of pixels arranged in a matrix form a first driver circuit connected to scanning lines and a second driver circuit connected to signal lines (column 4, lines *29-35)* wherein the video signal processing circuit 20 mainly performs gamma correction such that the processed video signal is inputted from the source driver circuit 13 through the signal line 18 to the pixel matrix area 11, thus applied to the pixel electrode of the liquid crystal cell 15 (see column 1, lines 66 through column 2, lines 1-15).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Tone modified by Margulis et al. and Hiroki because while Tone teaches how a CPU 513 activates a mode

change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615) and Margulis et al. discloses video data modulated by a gamma voltage correction apparatus are applied r to the data lines of a display device, via a column driver (Col. 13, Lines 35-47, Line 62 to Col. 14, Line 5, Col. 16, Line 33 to Col. 17, Line 65, Col. 18, Lines 8-26Col. 19, Line 36 to Col. 20 Line 23, Col. 24, lines 17-23), Hiroki teaches how the LCD comprises a column driver for correcting the video data by performing gamma correction and supplying the corrected video data to the data lines (see column 1, lines 66 through column 2, lines 1-15). The motivation for combining these inventions would have been to provide a high quality display device (column 3, lines 15-21).

Regarding **claims** 7 and **8,** in further discussion of claim 3, Hiroki discloses an active matrix display device, comprising a plurality of pixels arranged in a matrix form a first driver circuit connected to scanning lines (column 4, lines 29-35) wherein a timing controller via the video processing circuit 110 facilitates the supply of red, green and blue digital video data to the column driver and for applying a desired timing control signal to the row driver (see column 5, lines 32-62).

Allowable Subject Matter

10. Claim 36 is allowed.

11. The following is an examiner's statement of reasons for allowance:

A display device having a gamma voltage correcting part, wherein the display device has a display panel that includes a plurality of pixels defined by gate lines and data lines, the display device comprising: a display controller for receiving a first video data and vertical and horizontal synchronizing signals and outputting a second video data and a clock; **a lookup table driver connected to the display controller for adjusting color temperature of the second video data**

and outputting a third video data; the gamma voltage correction part including', a memory for storing at least two sets of gamma data for at least two input modes, a gamma controller for accessing one set of the gamma data in response to a selection signal, a multi-channel gamma voltage generator for responding to the one set of the gamma data to generate n gamma voltages (wherein n is an integer) having different voltage levels, and a column driver connected to the display panel, wherein the column driver receives the third video data and the n gamma voltages, and then corrects the third video data using the n gamma voltages and applies the corrected video data to the data lines.

The cited references fails to disclose above underlined bold claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

12. Applicant's arguments with respect to claims 1,13,21,29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Margulis et al. (6,340,991 B1) System and method for using temporal gamma and reverse super-resolution to process images for use in digital display systems.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

November 23, 2005

VIJAY SHANKAR
PRIMARY EXAMINER